

Tilapia nigrans

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, June 2015

Photo not available.

1 Native Range, and Status in the United States

Native Range

From Froese and Pauly (2015):

“Africa: endemic to Lake Ejagham, Cross River basin, Cameroon [Dunz and Schliewen 2010].”

Status in the United States

This species has not been reported in the U.S.

Means of Introductions in the United States

This species has not been reported in the U.S.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From GBIF (2015):

“KINGDOM Animalia
PHYLUM Chordata
CLASS Actinopterygii
ORDER Perciformes
FAMILY Cichlidae
GENUS Tilapia
SPECIES *Tilapia nigrans*”

“TAXONOMIC STATUS Accepted species”

Size, Weight, and Age Range

From Froese and Pauly (2015):

“Max length : 15.3 cm SL male/unsexed; [Dunz and Schliewen 2010]

Environment

From Froese and Pauly (2015):

“Freshwater; benthopelagic.”

Climate/Range

From Froese and Pauly (2015):

“Tropical”

Distribution Outside the United States

Native

From Froese and Pauly (2015):

“Africa: endemic to Lake Ejagham, Cross River basin, Cameroon [Dunz and Schliewen 2010].”

Introduced

No introductions of this species have been reported.

Means of Introduction Outside the United States

No introductions of this species have been reported.

Short description

From Dunz and Schliewen (2010):

“*T. nigrans* spec. nov. is a large Tilapia (maximum observed size 151.0 mm SL) with a laterally compressed body. Dorsal head profile moderately concave from insertion of first dorsal spine to upper margin of eye henceforward head profile changes to slightly convex. Large and compact head. Snout outline obtuse. Eye moderately large and interorbital width always greater than eye length. Greatest body depth at level of first dorsal spine. Dorsal line slightly posteroventrally curved. Caudal peduncle somewhat longer than deep.”

“Basic coloration yellow-greenish (breeding greygreenish), ventral side whitish to reddish (breeding: completely black). Lower side of head whitish (breeding: black) and upper side of head yellow-greenish. Upper lip light bluish, lower lip whitish. A horizontal iridescent blue line above antero-rostral margin of preopercle. Iris of eyes bright red. Body with seven to eight black dark vertical bars, nape band, supraorbital and interorbital stripe (no vertical stripes in breeding coloration). Dark opercular spot (breeding: opercular spot mostly not visible, operculum yellow-greenish). Pectoral fins transparent, pelvic fins and anal fin with black tips. Dorsal fin yellow edged, “tilapia spot” noticeable. Caudal fin completely yellow-greenish.”

Biology

From Dunz and Schliewen (2010):

“*T. nigrans* spec. nov. bred exclusively in excavated caves below 5 m depth (Schliewen et al. 2001). Unambiguously identifiable individuals were restricted to breeding pairs, which served as a basis for population genetic analysis and description. Differential ecological observations have not been possible for non-breeding individuals, as *T. nigrans* spec. nov. and *T. deckerti* could not unambiguously differentiated in the field. However, specimens larger than breeding *T. deckerti* were regularly observed digging with their mouths over open sand areas in deeper parts of the lake between the shallow inshore zone (above 2 m) and the central mud area (for a lake description see Schliewen et al. 2001).”

Human uses

From Froese and Pauly (2015):

“Fisheries”

Diseases

No OIE-notifiable diseases have been reported for this species.

Threat to humans

From Froese and Pauly (2015):

“Harmless”

3 Impacts of Introductions

No introductions of this species have been reported.

4 Global Distribution



Figure 1. Global distribution of *T. nigrans*. Map from GBIF (2015).

5 Distribution within the United States

This species has not been reported in the U.S.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match (Sanders et al. 2014; 16 climate variables; Euclidean Distance) was low throughout the contiguous U.S., reflected in a Climate 6 proportion of 0.0. The range for a low climate match is 0.000 to 0.005.

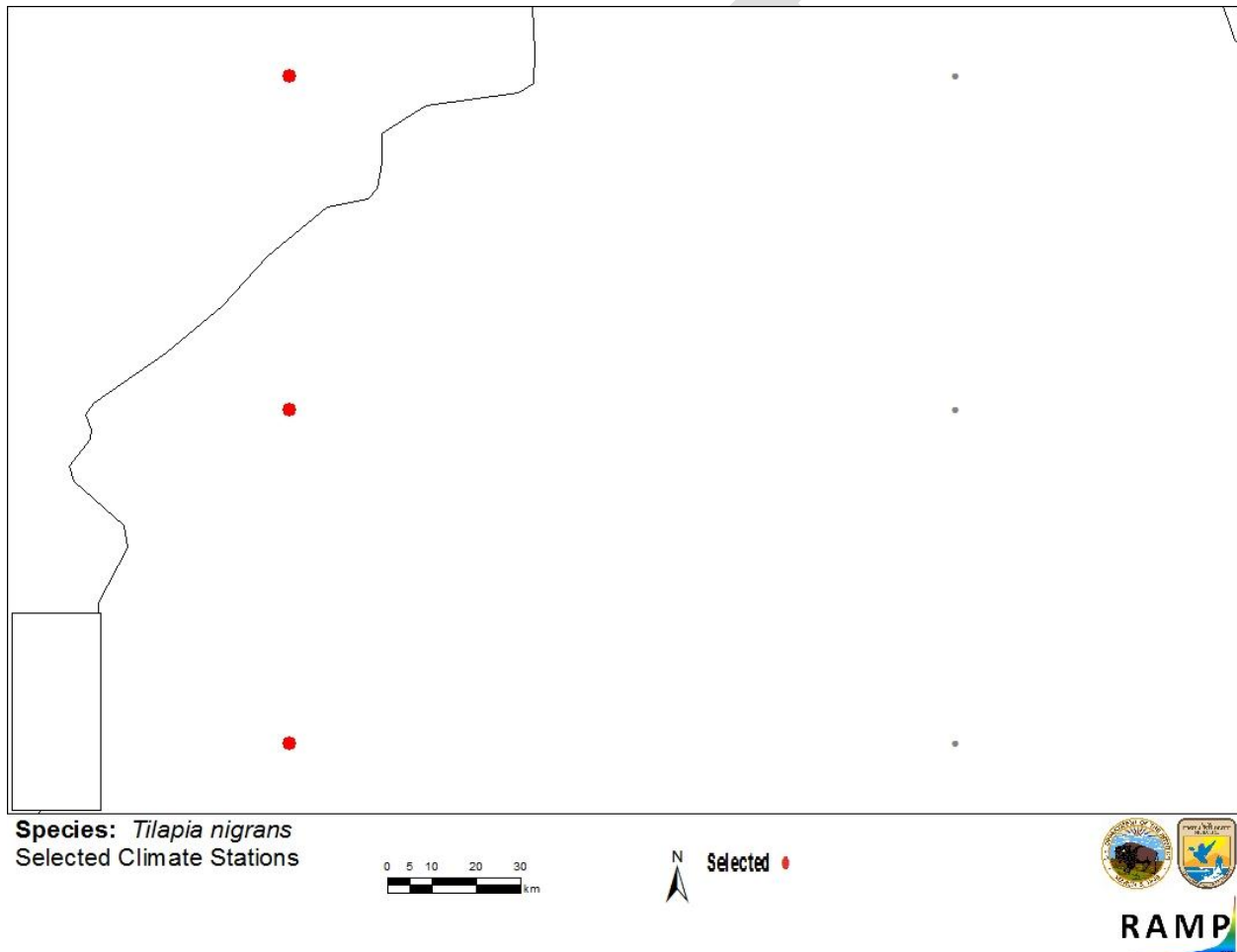


Figure 2. RAMP (Sanders et al. 2014) source map showing weather stations selected as source locations (red) and non-source locations (gray) for *T. nigrans* climate matching. Source locations from GBIF (2015). All source locations are in Cameroon.

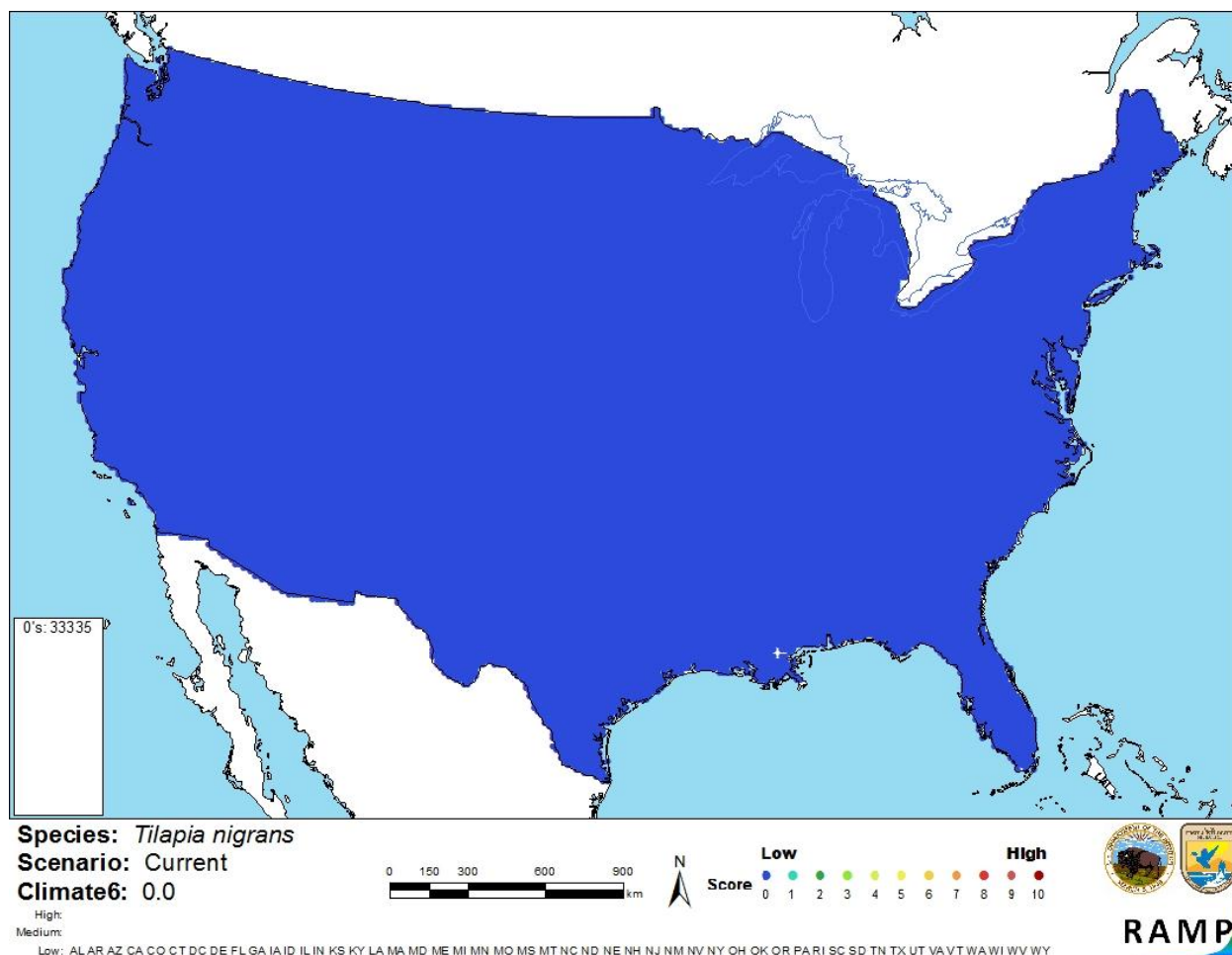


Figure 3. Map of RAMP (Sanders et al. 2014) climate matches for *T. nigrans* in the continental United States based on source locations reported by GBIF (2015). 0= Lowest match, 10=Highest match. Counts of climate match scores are tabulated on the left.

7 Certainty of Assessment

Little information is available on the biology of *T. nigrans* and it has not become established outside its native range. The certainty of this assessment is high because the lack of information about this species precludes any assessment other than “uncertain” risk.

8 Risk Assessment

Summary of Risk to the Continental United States

Tilapia nigrans is a benthopelagic cichlid endemic to Lake Ejagham in Cameroon. It has not been reported as introduced outside of this location. Because *T. nigrans* has no history of invasiveness, it is currently impossible to know what impacts *T. nigrans* might have if introduced to the U.S. Climate match to the contiguous U.S. is low, but this may be an underestimate because environmental factors other than climate tolerance may be responsible for the restriction of the species to a single lake. Tropical and sub-tropical areas of the U.S. may be suitable habitat for this tropical species. Overall risk of this species is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3):** Uncertain
- **Climate Match (Sec.6):** Low
- **Certainty of Assessment (Sec. 7):** High
- **Overall Risk Assessment Category: Uncertain**

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9 References

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 10.

Dunz, A. R., and U. K. Schliewen. 2010. Description of a *Tilapia (Coptodon)* species flock of Lake Ejagham (Cameroon), including a redescription of *Tilapia deckerti* Thys van den Audenaerde, 1967. *Spixiana* 33(2):251-280.

Froese, R., and D. Pauly, editors. 2015. *Tilapia nigrans* Dunz & Schliewen, 2010. FishBase. Available: <http://www.fishbase.org/summary/65868>. (June 2015).

Global Biodiversity Information Facility (GBIF). 2015. GBIF backbone taxonomy: *Tilapia nigrans* Dunz & Schliewen, 2010. Global Biodiversity Information Facility, Copenhagen. Available: <http://www.gbif.org/species/5961890>. (June 2015).

Sanders, S., C. Castiglione, and M. Hoff. 2014. Risk Assessment Mapping Program: RAMP. U.S. Fish and Wildlife Service.

10 References Quoted But Not Accessed

Note: The following references are cited within quoted text within this ERSS, but were not accessed for its preparation. They are included here to provide the reader with more information.

Schliewen, U. K., K. Rassmann, M. Markmann, J. Markert, T. D. Kocher, and D. Tautz. 2001. Genetic and ecological divergence of a monophyletic cichlid species pair under fully sympatric conditions in Lake Ejagham, Cameroon. *Molecular Ecology* 10:1471-1488.